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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,481	06/18/2007	Marco Wedowski	17979-046US1	5997

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EXAMINER	
WHITESELL GORDON, STEVEN H	
ART UNIT	PAPER NUMBER
2882	

NOTIFICATION DATE	DELIVERY MODE
08/19/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/598,481	WEDOWSKI ET AL.	
	Examiner	Art Unit	
	Steven H. Whitesell-Gordon	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 71-91* is/are pending in the application.

4a) Of the above claim(s) *82-91* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 71-81* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/29/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I claims 1, 71-81, in the reply filed on 6/23/2010 is acknowledged. Claims 82-91 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II, there being no allowable generic or linking claim.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

3. The examiner notes that the current application claims benefit to provisional application (60/550302) and the provisional application was filed in a language other than English and there has been no submission in the provisional application or the instant application of an English translation of the provisional application and a statement that the translation is accurate. In the event that the Office schedules a non-provisional application that claims the benefit of a provisional application filed in a language other than English for publication without issuing a Notice requiring the applicant to file an English translation of the non-English provisional application, the applicant should file the English translation of the non-English provisional application and a statement that the translation is accurate before the scheduled publication date.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 78-81 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 78 recites the limitation "the first profile" and 'the second profile" in lines 12 and 17. There is insufficient antecedent basis for this limitation in the claim. For the purposes of examining, the first profile is understood to be a profile of the first photoelectron curve; the second profile is understood to be a profile of the second photoelectron curve.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1 and 71-81 are rejected under 35 U.S.C. 102(e) as being anticipated by Yakshin et al. [WO 03/032329, US national phase entry application 10/491,764, published as US 2004/0253426]**

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

For claims 1, 71, 72, Yakshin teaches a method for qualifying a reflective optical element having a free interface at which radiation is reflected, the method comprising:

measuring at various wavelengths (range shown in Fig. 17a-21a and page 13) and/or various incidence angles of the radiation a reflectance (percent reflectance left axis shown in Figs. 17a-21a) and a photoelectron current (right axis) induced by the radiation in an area of the free interface (see page 24) resulting in: (a) a reflectance curve as a function of wavelength and/or incidence angle wherein the reflectance curve has a wavelength region of maximum reflectance and/or an incidence angle region of maximum reflectance (maximum of reflectance curve shown in Figs. 17a-21a); and (b) a photoelectron current curve as a function of wavelength and/or incidence angle wherein the photoelectron current curve has a profile within the wavelength region of maximum reflectance and/or the incidence angle region of maximum reflectance (photoelectron curve shown); and

using the profile of the photoelectron curve for determining a phase shift of a standing electromagnetic wave of incident radiation with respect to the free interface (phase shift of standing wave shown in Figs. 17b, 18b,. 19b, 20b and 21b as carbon thickness increases), or using the profile of the photoelectron curve for determining an intensity a standing electromagnetic wave of incident radiation with respect to the free interface (intensity shown at 0 on x axis as shown in Figs. 17b, 18b,. 19b, 20b and 21b).

For claim 73, Yakshin teaches determining the slope of the profile of the photoelectron current curve at the wavelength of maximum reflectance and/or the incidence angle of maximum reflectance (slope is shown in Figs. 17a, 8a, 19a, 20a and 21a).

For claim 74, Yashkin teaches determining a maximum (see Fig. 13 or Fig. 17a) or minimum (see Fig. 12 or Fig. 21a) of the profile of the photoelectron current curve within the wavelength region of maximum reflectance and/or the incidence angle region of maximum reflectance, wherein the wavelength corresponding to the maximum or minimum of the profile of the photoelectron current curve is closest to the wavelength corresponding to the maximum of the reflectance curve (see Figs. 12, 13 17a and 21 a, shows comparison between minimum and maximum photoelectron current to maximum reflectance).

For claim 75, Yashkin teaches the radiation is EUV radiation (~13nm).

For claims 76, Yashkin teaches the wavelength region of maximum reflectance or the incidence angle region of maximum reflectance is from -3% to 1% of the wavelength of maximum reflectance or the incidence angle of maximum reflectance (region of maximum reflectance shown in Figs. 17a-21b).

For claim 77, Yashkin teaches the photoelectron current curve and the reflectance curve are measured at several points on the interface in order to achieve spatial resolution (several points as carbon thickness increases, see Figs. 17a-21a).

For claim 78, Yashkin teaches a method for qualifying a reflective optical element that includes a multilayer system having a free interface at which radiation is reflected and/or a cap layer system and having a free interface at which radiation is reflected, the method comprising:

(i) measuring at various wavelengths (range shown in Fig. 17a-21b and page 13) and/or incidence angles of the radiation a reflectance (percent reflectance left axis shown in Fig. 17a-21a) and a photoelectron current (right axis) induced by the radiation in an area of the free interface (see page 24) resulting in: (a) a first reflectance curve as a function of wavelength and/or incidence angle wherein the first reflectance curve has a wavelength region of maximum reflectance and/or an incidence angle region of maximum reflectance (maximum of reflectance curve shown in Figs. 17a-21a); and (b) a first photoelectron current curve as a function of wavelength and/or incidence angle wherein the first photoelectron current curve has a profile within the wavelength region of maximum reflectance and/or the incidence angle region of maximum reflectance (one of photoelectron curves shown in Figs. 17a-21a);

(ii) comparing the first reflectance curve and/or the first profile with a second reflectance curve and/or a second photoelectron current curve, wherein the second reflectance curve and/or the second photoelectron current curve (maximum reflection compared to photoelectron curves shown in Figs. 17a-21a) is obtained by a simulation for a given thickness of the layers of the multilayer system and/or a given thickness of the layers of the cap layer system (carbon layer thickness shown in figs 17b-21b); and

(iii) if the first reflectance curve and/or the first profile do not approximately coincide with the second reflectance curve and/or the second profile (see photoelectron curve profiles of Figs. 17a-21a), repeating (ii) with a different thickness of the layers of the multilayer system and/or a different thickness of the layers of the cap layer system, wherein the method determines a thickness profile of the multilayer system and/or the cap layer system of the optical element (see carbon thickness increases in Figs. 17b-21b).

For claim 79, Yashkin teaches the radiation is EUV radiation (wavelength ~13nm).

For claim 80, Yashkin teaches that in (ii) the first profile and/or the first reflectance curve are compared with reference data measured at a reflective optical element with a multilayer system and a cap layer system of known thickness instead of comparing with a second reflectance curve and/or a second photoelectron curve obtained by simulation (see Figs. 17a-21a).

For claim 81, Yashkin teaches the photoelectron current curve and the reflectance curve are measured at several points on the interface in order to achieve spatial resolution (several points as carbon thickness increases, see Figs. 17a-21a).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Whitesell-Gordon whose telephone number is (571) 270-3942. The examiner can normally be reached on Monday to Thursday, 9:00 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. H. W./
Examiner, Art Unit 2882

/Hung Henry Nguyen/
Primary Examiner of Art Unit 2882